Melanoma Prevention and Early Detection

(As of 9 March 2000)

Background

In 1996, the lifetime risk of a person in the United States developing melanoma was 1:87. This number represents a greater than 1000% increase over the past 50 years and the yearly increase in the incidence rate of this disease in the U. S. is approximately 6%. The same risk for a white male in the U.S. is even higher—approaching 1:60. Two published studies of these rates in U. S. military populations show equivalent risks, and melanoma is rapidly becoming the most common cancer in males on active duty (second to testicular cancer in a 1990 published report). These rises in incidence rates are not due to merely increased awareness and detection, for despite increasing survival percentages for all stages of this disease, the overall mortality rate from melanoma in the U. S. has also continued to rise. Although melanoma still carries a very poor prognosis in its advanced stages, fortunately it is frequently detectable and curable in its earlier phases.

Because populations of patients at relatively high risk for developing melanoma are identifiable, dermatologists have long practiced taking pictures of these patients in order to identify the nevus in evolution toward a melanoma or the melanoma arising *de novo*. While this practice may work well in community-based, civilian practices, because of the mobility and transient nature of military patient populations, this practice has had little success within the DoD.

Currently, there is no standard for imaging patients at high risk for melanoma, and in those offices in the DoD where such pictures are taken, problems regarding the legal issues surrounding the storage of this portion of the patient record are commonplace. Often the package of pictures is handed to the patients when they change duty station presuming that the new station will agree with the methods used at the former and that the new station will have a process in place for archiving the photographs. Unfortunately, because of these faulty presumptions, often the utility of these imaging studies is negated when the patient moves within the DoD.

Finally, there is no standard process in place to enable the viewing of histologic studies of previously biopsied nevi in the patient at high risk for melanoma. When a pigmented lesion arises in a patient at the site of a previous biopsy, for example, reevaluation of the histology of the original lesion can be crucial in the decisions about the care of that patient. Again, the transient nature of our population and the variable methods by which pathology departments store and share their tissue sections present obstructions to using these studies in future decision analyses of patient care.

This study proposes to identify the patient at relatively high risk for melanoma, develop standards for taking digital images of these patients, develop standards for taking digital images of histologic sections of atypical pigmented lesions, and to develop and deploy a secure, web-accessible, DII/COE-compliant

database for the archival and future access of these images. Although this project will take place at Elmendorf AFB, the overall aim is to create a process and the tools necessary to carry out that process anywhere within the DoD. All database design will conform to DII/COE standards and, therefore, would have the potential of being incorporated into the future electronic patient record.

Mission Statement

This project seeks to design an easily reproducible approach for image studies of patients most at risk for melanoma and eventually incorporate this database of images into existing DoD medical information systems and the electronic patient record.

Goals and Objectives

- Determine how well digital images of dermatologic lesions compare to conventional photographic images taken through identical photographic lenses in equivalent lighting for dermatologists' diagnostic purposes?
- Determine how well digital images compare to conventional images taken through identical lenses for purposes of clinical management decisions in patients at relatively high risk for melanoma?
- Determine whether a secure, web-based, DII/COE-compliant, fully relational, digital image database is feasible for use in patients at high risk for developing melanoma—and—could such a database

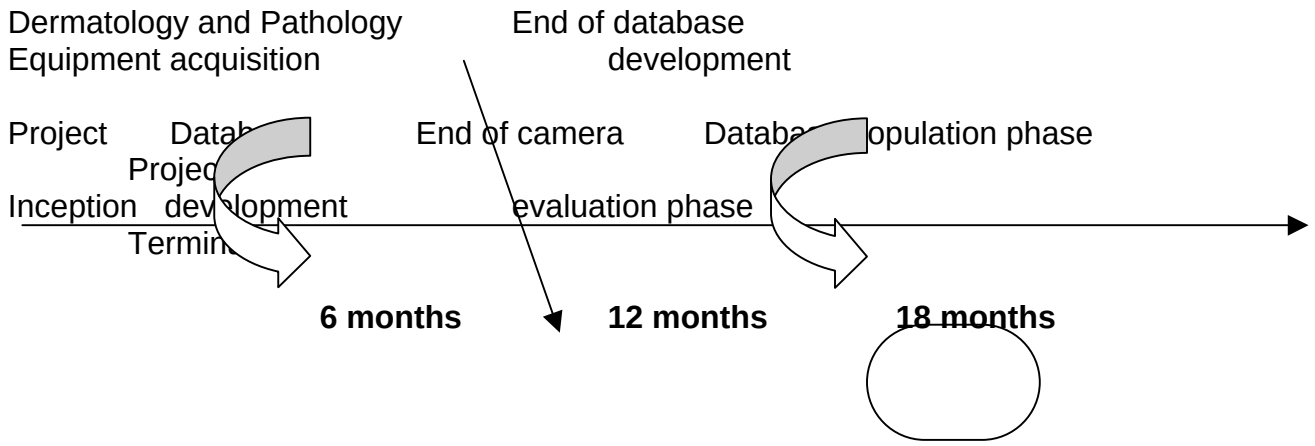
Current Status

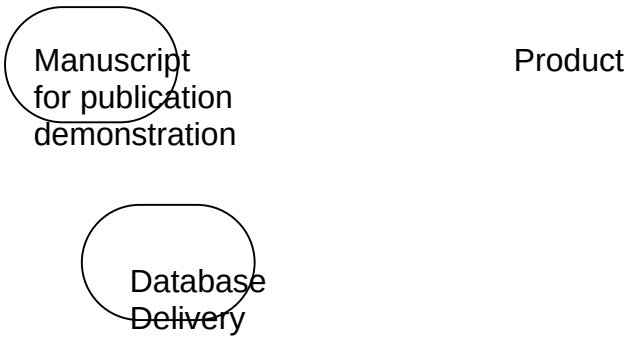
a) Primary Accomplishments-

1. Bill of materials (BOM) for the hardware is in the procurement cycle.

2. The Statement of Work (SOW) for the development of the database system is being finalized by the business team and should be released for procurement in a week.

b) Project Timelines – MS Project Timeline attached.





Strategic Direction

Develop the "system" such that the database of images can be ported to, or at least accessed and used by existing and future DoD medical information systems. The Melanoma database can also be a candidate for use by the electronic patient record.

Business Associations

Corporate Partnerships: TBD at contract award

Government Partnerships –

Department of Clinical Investigation, Tripler AMC
Information Management Division, 3RD Medical Group, Elmendorf,

Project Security

The statement of work specifies that the Contractor shall provide for secure access to the designed system as well as secure transmission of data between the user interface and the server. It should provide a secure Login/ Password method for user accesses and administrative accesses.

Summary

Melanoma, a potentially lethal form of skin cancer, is the second most common type of cancer in males in the U. S military. Furthermore, its incidence and mortality rates in all patients worldwide have continued to rise dramatically over the last four decades.

This study proposes to identify the patient at relatively high risk for melanoma, develop standards for taking digital images of these patients, develop standards for taking digital images of histologic sections of atypical pigmented lesions, and to develop and deploy a secure, web-accessible, DII/COE-compliant database for the archival and future access of these images. The overall aim is to create a process and the tools necessary to carry out that process anywhere within the DoD.